CARA CAPERS

Candlewood Amateur Radio Association

May 1989

MEETING NOTICE

The next regular meeting of the Candlewood Amateur Radio Association will be held on Friday May 12, 1989 at St. Paul's Episcopal Church on Route 25 in Brookfield, CT.

The May meeting will feature a program by Hal Keenan - KB1US on Amateur Satellite Communications.

As usual the swap tables will be open before the meeting and coffee will be ready at 7:30 so come early and bring along your unneeded gear. The business meeting begins at 8:00 P.M. with the program to follow.

APRIL MEETING

The April meeting began at 8:00 P.M. with the introduction of John Lindholm - W1XX. John presented a very interesting talk and slide presentation on VHF contesting from remote grid squares and mountaintop locations.

The business meeting was called to order at 9:15 P.M. by Hal - KB1US. Hal called Dan - W1QK to report on the upcoming Connecticut QSO Party. Dan urged all members to participate in the contest using their own calls and as the club station W1QI.

Craig - N1ABY reported for the Field Day committee. Tony - N1FIH and Norm - N1ASU joined Craig on the committee replacing Bob - NA1N who resigned. Both the date and the site for Field Day are set. The location will be the Brookfield Town Park on Candlewood Lake Road and the date is June 24 and 25, 1989.

Hal reported that the ARRL Book Collection donations approved at the March meeting have been made to the Bethel and Danbury Public Libraries. When the libraries have cataloged the books to allow public borrowing an announcement with promotional photos will be made. This should happen by the end of the year.

George - KC2QF reported on the 1989 CARA Hamfest; Dealer invitation letters have gone out to 42 dealers in the northeast and application has been made for ARRL sanction. The announcement has been submitted to QST and CQ magazines. A copy of the flyer appears in this issue of the CAPERS and was distributed at the meeting. George asks that you make copies of the flyer and distribute them if you can. Flyers are being mailed to 10 other clubs in the area for inclusion in their newsletters. The Elk's Club has approved our request to serve refreshments and will make the kitchen available to the club for an additional $25.00. A decision needs to be made as to a raffle. There is an immediate need for volunteers for the food committee and additional volunteers for general tasks will be needed later.

Marty - KA1HYL again displayed his ideas for the club banner in hopes of getting a design approved. Len - KV1P offered to work up some scale artwork on his computer in time for a vote at the May meeting. The project must be approved at the May meeting if we are to have the banner ready for Field Day in June.

Craig - N1ABY took the floor to announce the plans for the Fox Hunt. The fox hunt will be held on May 19, 1989. Participants should meet at St. Paul's in Brookfield at 7:00 PM. Mike - KC1IS will be the Fox. Details may be found in this issue of the CAPERS.

Hal - KB1US discussed our alliance with the Red Cross and the Danbury Office of Civil Preparedness. George - AF1U has been named Radio Officer for Danbury. The city of Danbury has offered the King Street Fire Station as a possible repeater site to either relocate the 147.12 machine or construct a new 440 MHz repeater.

Announcements; Tony - N1FIH has been named the trustee of the PVRA 147.12 repeater. George AF1U announced that the N1DVS DX Packet Cluster has made its final move to 144.990 MHz.

PRESIDENT'S COLUMN

View From The Top

We are coming down to the wire with only two months to go until the end of the normally active CARA season.

May will reintroduce the CARA Fox Hunts, popular a few years ago. An excellent means of keeping the eyeballs going during the summer hiatus giving each of us the personal contact that somehow doesn't happen even with our chosen first love,

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radio. Surveys taken over the years tell us that the primary reason people join a radio club is for camaraderie -- personal contact for which there is no substitute. I hope to see and hear as many of our members participating in the fox hunts as possible. Even though you may not feel the need to join in the frivolity, there will be someone out there who will miss you. A license class or 2 meter radio is not necessary. Map readers, antenna twisters, and shotgun riders are needed.

June is always an active month with the preparation and participation in Field Day, which incidentally, always takes place on the last weekend in June. Field Day weekend is a time for hard work, lost sleep and lots of fun that always draws the largest turnout of any event of the year. Those who have had the opportunity to partake of Field Days past are sure bets to be on hand. Those of you who have not had the experience should make a point of not missing the event. CARA has the unique advantage of having some of the best technical talent available anywhere when it comes to setting up and operating an emergency training exercise; the primary function of Field Day. For those new to amateur radio it is an educational experience without duplicate.

I look forward to meeting each of you at these premier events.

73, de KB1US

EDITOR'S DESK

Welcome to the May Issue of the CARA CAPERS. Once again the format of the CAPERS has been changed. I have been fortunate to have received lots of material recently and in order to fit everything in to one issue, the CAPERS has changed to a three column format. As promised for the April issue, but delayed due to lack of space, this month's column will be an overview of the PACKET RADIO PROGRAM presented at the March Meeting by Al - K1LTJ, Lee - KA1EUE and myself.

The first part of our program dealt with 'What Is Packet Radio' and was handled by K1LTJ. I don't have Al's notes, but I'll do the best I can to explain it.

Packet Radio is a method to transmit textual data, error free, from point A to point B via Amateur Radio. Packet is based upon the AX.25 networking protocol and it's implementation in the Amateur Service has evolved over the last several years in to what we have today.

The protocol determines that there is additional information sent along with the data to enable the receiving station to act upon the incoming packet and to insure error free transmission. The make-up of a typical 'packet' of information or FRAME as it is properly referred to is as follows:

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|FLAG|ADDRESS|CONTROL|DATA|FCS|FLAG|
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The FLAG found at both ends of a frame is a unique series of bits that tells the hardware where a frame begins and where it ends. Next the ADDRESS identifies the station where the frame originated, where it is going, and what digital repeaters (digipeaters) will be used, if any. Following the address is the CONTROL field. In this field is information that tells the hardware what type of frame this is. The possible types are SABM or Sequential Asynchronous Balanced Mode (the Connect Request), RR or Receive Ready, RNR or Receive Not Ready, REJ or Reject, UI or UnNumbered Information, DM or Disconnect Mode, DISC or Disconnect Request, UA or UnNumbered Acknowledge and finally the I or INFORMATION Frame. Many of these types will use a frame number which is also included in the control field. After the control field is the DATA field. This field contains the textual data if this is an INFORMATION Frame. Only a small number of the frames passed back and forth in a packet network are actually I Frames, or frames containing data. Next comes the FRAME CHECK SEQUENCE or FCS. This is the error detection field that contains a checksum of the entire frame. If the receiving hardware computes a different checksum from that contained in the FCS then the frame is assumed to be bad and a REJect frame is sent. Last is the ending FLAG to tell the hardware that this is the end of the frame.

Why are frames important you might ask. The answer, very simply; this method of organizing data, and the communication between two packet stations to keep the data in order and error free, is what makes Packet different, and more reliable, than other forms of data transmission such as RTTY. Also, because of the error checking and the fact that these frames are short burst transmissions, several conversations or CONNECTIONS can be established on the same frequency simultaneously.

If you desire more information on the AX.25 protocol as implemented in Amateur Packet Radio I would suggest you look into several books that are available on the subject through the ARRL and Radio Shack. A more detailed description would probably bore most of you and is beyond the scope of this introduction.

The 'Hardware Requirements' of packet radio was the second portion of the program presented by KA1EUE. Lee used as examples copies of advertisements for Packet Radio Terminal Node Controllers or TNC's that he had cut from several Ham Radio magazines. I won't go into the details of each of these different units here as it would be easier for you to browse the magazines yourself. I will, however, describe the hardware required to operate on packet, and how it interconnects.

First you will need some type of display terminal. This can be anything from an old Teletype machine (Bob - KA2BCD knows a dump in NY where you can find an abundance of these!) or a dedicated terminal such as those used with large computer systems. Most people, however, choose to use some type of computer and terminal software since the computer has other uses in

the shack and can serve double duty. The terminal you chose is entirely up to you except that it must have either a standard RS232 Serial interface, or for some TNCs, a TTL interface. TTL interfaces are normally found on Commodore computers. The key here is to know what you will be using as a terminal before you purchase the TNC so you can check compatibility of the TNC you plan to buy with the terminal equipment.

Next comes the TNC. There are many varieties from the bare bones to the new multi-mode units which include several other digital modes in addition to Packet. You can expect to spend between $75 and $300 for a new TNC. The TNC incorporates a computer interface, modem, microprocessor and software in ROM. The microprocessor and software decode the incoming packets to display them on your screen. The software also takes the output from your keyboard and 'packetizes' it for transmission.

Last but not least comes the radio. Packet radio does not require a dedicated rig unless you plan to operate a bulletin board or be a full-time digital repeater. You can operate Packet both HF and VHF, however, if you plan to operate HF make sure the TNC you purchase has a tuning indicator and HF modem included. Most packet activity is on VHF on 2 Meters at 145.01 145.03 145.05 and 145.07 MHz. Local activity centers on 145.03 and 145.07 MHz. The VHF packet rig can be any rig capable of FM simplex operation on the packet frequencies. With the proper antenna even an HT can be used for packet.
Once you have gathered all the required items, they need to be interconnected. The TNC will be the hub of these connections. You will need an RS232 cable to run from the TNC to your terminal or computer. Typically this cable will contain 25 wires, however, the TNC only needs 3 or 4 to do the job. Next you will need an interconnect cable between the TNC and the radio. Most TNC manufacturers supply the cable but you will have to add the connectors for the radio end. There will be one connection to the rig's microphone input, one to the Push-to-Talk input and one to the speaker output. Some HTs do not utilize Push-to-Talk so some special wiring may be required. Most TNC makers include diagrams in their owner's manuals. Finally you may wish to have a monitor speaker so you can hear the Barrraaapp of the packets as they travel back and forth between stations. This speaker is typically connected to the TNC through it's monitor jack.

Now you know what packet is, how to gather and assemble the hardware to make it work, but what can you do with it? This is where I came in to present the fun part; 'Packet Radio Operation'.

The simplest form of operation is the keyboard QSO. To initiate a keyboard QSO with a nearby ham (who is on frequency and packet capable) simply tell your TNC to CONNECT to that station. For example, if you were connecting to me you would type C KA1RLX and press the Return Key (or Enter) on your terminal. Your TNC will then attempt to connect to my TNC by sending the SABM Frame (remember frames?). If my TNC hears your TNC it will respond with a SABM frame acknowledging the connect. Your TNC will display the message *** CONNECTED TO KA1RLX on your screen. From this point anything you type (and press return to) will be 'packetized', sent to my TNC and displayed on my screen. Anything I type will be displayed on your screen. When the QSO is over one of us will have to send a DISConnect command to our TNC to end the conversation and disconnect the link between us. Refer to your TNC manual on how to issue commands after a connection has been established.

Keyboard QSOs are fun, but there's more. Probably the widest use of Packet Radio today is Packet Bulletin Board Systems or PBBS's. PBBS's are very similar to telephone bulletin boards except that they are not so verbose and almost always allow mail forwarding. On a PBBS you can read bulletins about subjects from No-Code Licensing to AMSAT News as well as keep up with the latest news from the ARRL. You can leave a message, or a file, for a fellow ham across town or across country. You can download information files and programs from the PBBS's data bank. Some systems support key word searches of data libraries on subjects from Zip Codes to 50's Music.

The most ingenious feature of the PBBS systems is their ability to forward mail. So long as you know the callsign of the addressee's home PBBS you can place a message on your local PBBS to be forwarded. In a matter of hours the message will appear on the addressee's home PBBS.

This forwarding is accomplished with the help of a Nationwide Packet Radio Network that has sprung up known as Net Rom or more recently, TheNet. This network obsoletes the use of digipeaters which worked fine if you were only using one or two. These 'dumb' digital repeaters got to be a problem when the network was busy or you needed to use three or more to reach a destination. Digipeaters did just that, repeat the digital information they received to the next station in line. They did no error correction/detection of their own.

Net Rom changed they way digital repeaters operate, it gave them smarts. Now, rather than relay through digipeaters, you need only connect to the network through your local node and issue a connect request to the distant node. The network will handle all the details of routing and the error detection & correction along the way. This makes it easier for you to connect to distant stations and it works a lot better than the old way of digipeating when using more than two hops to make a connection.

If Keyboard QSO's, PBBS's and exploring Net Rom aren't appealing then you should assume that packet is not for you, right? WRONG. If you're a DX hound There is something happening on packet called the DX PACKET CLUSTER. I'm told it works like this: You're in you shack looking for DX, you connect to the cluster and wait.

All of a sudden your screen begins to fill with callsigns and frequencies of DX that's on the air NOW. You tune the frequency, listen and work the DX. It's that simple, or so George - AF1U tells me! George will be glad to provide you with details of the cluster, how to connect and what you can do. All you need do is ask!

That about wraps it up for this month. If you were unable to attend the March meeting I hope this column filled you in on Packet Radio. If you were at the meeting I hope it explains what we were mumbling about that evening!

See you next month with an update on local Fast Scan Amateur Television activity (a follow-up on Lee's article this month).

73, de Jon - KA1RLX

LOCAL NETS

CARA Roundtable Net every Wednesday:

8:00 PM 2 Meter Net 147.12 MHz + 600
8:30 PM 10 Meter Net 28.350 MHz +/-QRM

Every Friday:

8:00 PM 'BEARS' Net 28.350 MHz +/-QRM

VE CORNER

QUESTION: What happens if I forget to bring to a test session my original license, a photo copy of my license, or my original CSCE?

ANSWER: It is important that you bring these documents along with you when planning to test at a session.

THE CSCE: To be given credit for code or written elements passed at previous VEC coordinated sessions, the original CSCE, not a photo copy, must be presented to the VE Team.

THE ORIGINAL LICENSE and/or photo copy: The original license must be presented to the VE Team as well as a photo copy which will accompany your test papers to the ARRL/VEC.

IN ALL CASES: if you have presented the VE Team with the proper identification, you may still take the test. A note to the ARRL/VEC will be stapled to the front of your test papers informing them of any missing documents. The VE Team will give you a CSCE for element credit earned at this session, but not for an upgrade. A second CSCE indicating the upgrade will be sent to the ARRL/VEC to be mailed to you upon presenting to them the proper missing documents.

QUESTION: Can I be tested at a regular scheduled ARRL/VEC test session if my amateur license has been lost or stolen?

ANSWER: A licensed candidate who for whatever reason does not bring his/her original FCC Amateur License to a test session can still be tested so long as he/she brings other appropriate identification, assuming that the identification checks out. However, the candidate whose ticket was lost or stolen may write (and sign) a short explanation of the circumstances. This note will serve in lieu of the license if the note is attached to the application.

The above information was taken from the VE Manual.

"SWAP and SHOP" NETS - Rules & Regs:

QUESTION: In the United States there are many nets that cater to hams selling and buying their ham radio equipment. Are these so called "SWAP and SHOP" nets legal?

ANSWER: Yes, within certain constraints. Amateurs may use their stations from time to time to discuss the availability of a piece of amateur radio equipment, but such activity would be limited to that of an occasional nature.

It's best not to discuss price on the air. Instead swap phone numbers with the interested party and finish the dickering off the air. Activities could not include any items of a personal nature, such as a camera or ordinary broadcast radios. Hams should not engage in regular "Flea Market" or business activities on swap nets so as to derive profit by buying and selling ham gear on a regularly scheduled basis (97.112).

The above from the FCC Rule Book, Chapter 6, Page 9.

TEST SESSION DATES:

SARA: Saturday May 13, 1989 1:00 P.M. (Check-In 12:00 Noon to 1:00 P.M.) at the Stamford Red Cross HQ, 911 Newfield Avenue, Stamford, CT. For more information contact Joe Lefferson - W1LUF at (203) 625-3680 Days or (203) 322-3156 Evenings

CARA: Saturday June 17, 1989 12:00 Noon. NOTE: This is a date change! Originally scheduled for 6/10 NOW 6/17. (Check-In 11:00 A.M. to 12:00 Noon) at the Hawleyville Fire Station, Route 25 in Hawleyville (Newtown) CT. For more information contact Joe Casidy - NM1O at (203) 261-3915

Don't forget, If you are planning to attend a test session, be sure to bring your Drivers License as ID along with your Original FCC Amateur License and a photo copy to give to the VE Team.

de Jean - NM1P

AMATEUR TELEVISION

ATV operations in the CARA area are now a reality. Currently using this fascinating mode of operation are Lee - KA1EUE, Al - K1LTJ and Jon - KA1RLX. Pete - KZ1Z, is currently transmitting ATV from the Bethel middle school and is in the process of setting up another system at his home shack. We all hope to see his smiling face on the tube soon.

Current ATV operations can be seen on 439.25 simplex with talk back frequency of 146.55. This allows for full duplex two-way voice communication.

ATV repeater plans move ahead! The planned ATV repeater system is making headway. Location, use and coverage were all discussed during the planing stages. The answers to all the questions pointed to the need of a centrally located repeater serving the towns of Danbury, Bethel, New Fairfield, New Milford and Brookfield. I am glad to say that at this time the repeater is under construction and nearly complete. It should be on the air sometime in May. As the weather conditions allow, we will be doing site testing by mobile operations to arrive at a better idea of coverage and locations for the repeater.

ATV has been around since the late 50's but was not a popular mode due to the cost involved. Within the past few years the reduced cost and the availability of used equipment at flea markets have made ATV affordable to the average ham.

I find that ATV still seems to be somewhat of a new frontier and this is what makes it enjoyable. The fact that aside from the FCC rules and regulations there is no on-air format to follow. It is open field to let your imagination run. You can create new ideas and share them with others. Often the other operators like what they see and and use your ideas.

There are many uses for ATV. Among them could be tours of Candlewood Lake from the boaters view. How about live coverage of the annual Red Cross Swimathon or Monthly transmission of the CARA club meeting? Think about it, if you are unable to attend the meeting just set up the VCR and tape it for later viewing. The meetings and events could be brought to those that have been unexpectedly laid up. As area towns have special events they could be aired on ATV.

Have you ever tried to explain an idea or project you are working on and need some help with it over the air? With ATV you have the advantage of sight to help explain your situation. You would be astonished how much faster you can get your point across. These and many more ideas can be done on ATV. The FCC rules for ATV are the same as voice communications, just about the only thing you can not do is rebroadcast commercial television. So the opportunities are endless.

73, de Lee Scott - KA1EUE

Editor's Note: Please see the back cover of this issue of the CAPERS for a last minute update on Amateur Fast Scan Television activity including the latest news about the KA1EUE/R - ATV Repeater on 439.25 MHz. Also next month in CAPERS will be a feature article on the 'How-To's of ATV

COMING EVENTS

Mark your calendar with these important dates:

May	4	FARA's Mini Flea Market
May	6	PearlFest-89 Brewster NY
May	12	May CARA Meeting Night
May	13	SARA's VE Test Session
May	15	June '89 CAPERS Deadline
May	19	CARA's Fox Hunt 7:00 PM
June	9	June CARA Meeting Night
June	17	CARA's VE Test Session
June	12	Jul/Aug CAPERS Deadline
June	24/25	ARRL Field Day contest
July	8	FARA's VE Test Session
August	12	SARA's VE Test Session
August	14	Sept '89 CAPERS Deadline
Sept	8	Sept. CARA Meeting Night
Sept	9	CARA's VE Test Session
Sept	11	Oct. '89 CAPERS Deadline
Sept	17	Annual CARA Hamfest/Flea

Editor's Note: I still need more dates. If you know of any events such as Flea Markets and/or Hamfests, VE Testing Sessions, Contests or other items of general interest to our members, Please submit them for publication in the CAPERS! ED.

Do you have an Amateur Radio Specialty or consider yourself an expert in some facet of Amateur Radio? The CARA CAPERS is seeking Feature Columnists for next years volume. Please contact Jon - KA1RLX if you would like to write a feature column for CAPERS.

CAPERS CLASSIFIEDS

Advertising in the CAPERS is free to all club members. Ad copy should be submitted to the newsletter address in time to reach us before the deadline. The NEW submissions deadline for the CAPERS is the Monday following each monthly meeting.

Ads will run for three issues unless canceled by the writer. Ads may be extended beyond 3 issues by specific request.

Rough copy submitted to the CAPERS will be edited and formatted as we see fit. If you have a specific ad layout in mind please submit camera ready column size copy using both lower and upper case letters. Properly formatted or rough copy may be sent on packet radio to KA1RLX @ K1LTJ-4 PBBS 145.03.

Items For Sale

FOR SALE:

ROHN 25 Tower - 45 Feet with HAM IV Rotator, cable, control AND MOSLEY CL-33 Classic Beam with all cables: $ 350.00

HENRY 2KD Linear Amplifier with 10 Meters: $ 500.00

Please contact: Bob Elton - NI2B at (203) 790-7987 After 7:00 PM.

Advertise your un-needed or wanted items in the CARA CLASSIFIEDS There is No Charge for members to place an ad. Why not do it today?

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On May 19th we will be having a FOX HUNT--- an opportunity to practice radio-direction finding and have a GREAT time!!

We will meet at St. Paul's in Brookfield at 7PM and go from there. The hunt will last until 8:30PM or until the last team finds the Fox, whichever comes first.

The object of the hunt is to find the hidden transmitter- the FOX- by using direction finding antennas and triangulation. These techiniques can be used to find not only the FOX but can also be used to find repeater jammers,sources of interference and ELT transmitters on downed aircraft. It's not only fun but useful, too.

RULES----------

1. FOR THE FOX
   A. Transmits for 30 seconds out of every 5 min.on 147.52 MHZ. The 30 seconds may be positioned anywhere within the 5 minute period.
   B. The Fox may "hide" anywhere within a 5 mile radius of St.Paul's. The hiding place must be accessable to the public.
   C. The fox may use any power level,antenna type or polarization he chooses. He may change any of these variables whenever he chooses.

2. FOR THE HUNTERS
   A. The hunters may use any type of antenna(s), reciever, or attenuators. DOPPLER-SCAN equipment is also acceptable.
   B. Different teams may co-ordinate thier efforts. All inter-team communications should take place on any frequency except 147.52.
   C. All teams must start from St.Pauls Church.

Mike Nelson, KC1IS, will be our fox and promises to give us a chalange. See you there on the 19th!!!!

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CANDLEWOOD AMATEUR RADIO ASSOCIATION

FLEA MARKET

CARA

CANDLEWOOD AMATEUR RADIO ASSOCIATION
DANBURY, CONNECTICUT U.S.A.

W1QI

SUNDAY, SEPTEMBER 17,1989
ELKS LODGE, 346 MAIN ST. DANBURY, CT.
10am-4pm, Table set-ups at 8am.
Admission:$3.00, Kids under 12 FREE.
Tables:$8.00, For Reservations- C.A.R.A.
P.O. BOX 143, Bethel, Ct. 06801

*HAM RADIO EQUIPMENT

*ELECTRONIC COMPONENTS

*DOOR PRIZES

*RAIN OR SHINE

*OVER 50 SELLERS IN THE PAST, DON'T MISS IT!

*REFRESHMENTS AVAILABLE

*COMPUTER PRODUCTS

*EQUIPMENT RAFFLE

*DEALERS

*ARRL AFFILIATED CLUB

*EASY ACCESS TO I-84

*TALK-IN ON 147/72-12

DIRECTIONS: From Waterbury, take I-84 to exit 5, make right at end of exit, go about 2 miles to Elks Lodge on right.

From the south, take I-84 to exit 5, go down the hill, make right on to Main St. to Elks Lodge on right about 3/4 mile down.

For futher info: 914-533-6653; 203-438-3875; 203-792-1845; 203-426-4551

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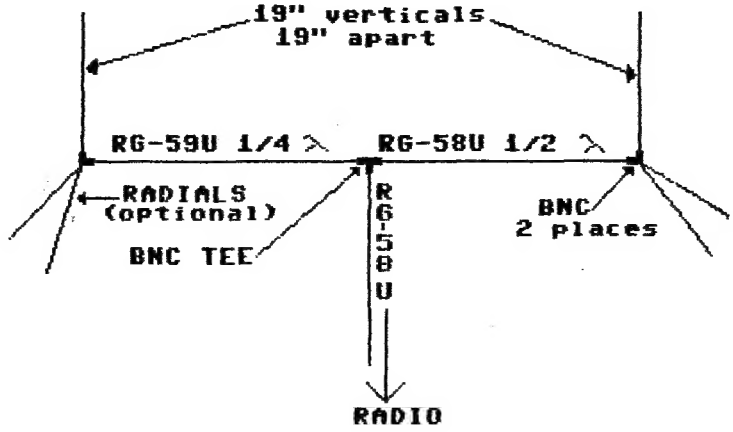

2 Meter DF Antenna

A simple design for a 2 meter DF antenna that will produce a cardioid pattern useful for Direction finding is shown schematically above. Two 1/4 wave verticals are spaced 1/4 wave apart and fed 1/4 wave out of phase.

The assembly is mounted on 1/2" PVC tubing, in the form of a Tee, for convenience in handling and rotating. Use pieces of printed circuit board for fastening the BNCs to the verticals and tubing on either end.

In use, the antenna is connected to a radio with an S meter. The antenna is rotated until the deepest null is found via the S meter. The arriving signal will be coming from the direction in which the RG-59U lead is pointing.

A necessary item for DFing is a 120dB attenuator calibrated in 6 dB steps. When the hunter is in close proximity of the transmitting station the signal will overpower the S meter so the null will not be apparent.

This system is not new or orignal by any means. Please refer to QST, March '81, page 43 and April '81, page 41 for excellent articles by Peter O'Dell KB1N. The ARRL 1988 HandbooK, page 39-15 and 12-11 contains further information as do the various ARRL antenna publications.

I will have my old, beat-up system at the May meeting for viewing. Please don't embarrass me by asKing about my success rate.

Happy hunting!

de KB1US

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Trimming CB Antennas for 10-Meter Ham Radios

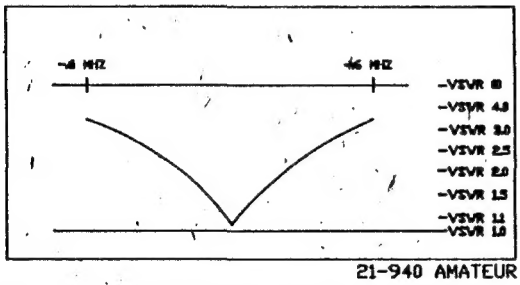
Some of our CB antennas can be trimmed for use with our HTX-100 10-Meter SSB/CW Mobile Transceiver. The procedure is simple, but you need the information in the following charts to decide how to trim the antennas. Only the six antennas covered in these charts can be used with the 10-meter transceiver.

1. Determine the center of the frequency range you want to use with the HTX-100. (For example, if you want to operate between 28.1 MHz and 29.3 MHz, the center frequency is 28.7 MHz.)
2. Using the information in the appropriate chart, cut the antenna's whip to the correct length for the center frequency.
3. Connect an SWR meter between the antenna and the transceiver.
4. Measure the SWR when using the center frequency.
5. Loosen the set screw that holds the antenna's whip in place and pull it out about 1/8 inch.
6. Measure the SWR again.

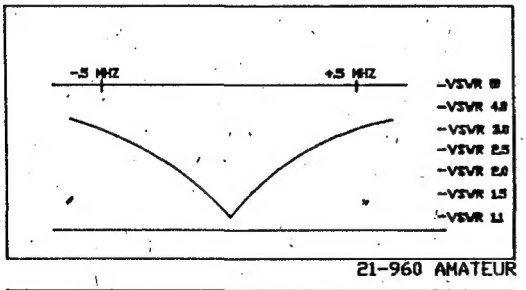
   If the SWR increased, return the whip to the previous position.

   If the antenna SWR reading is significantly higher than the those listed on the SWR charts, you might have to shorten the antenna a little more. Never shorten it more than 1/8 inch at a time.

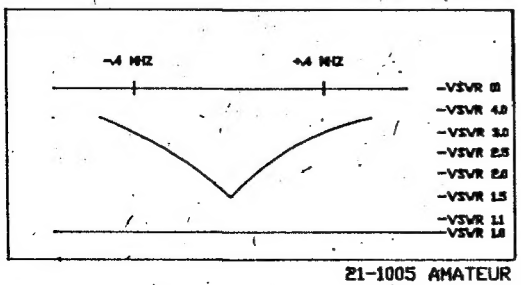
   If the SWR decreased, pull out the whip about 1/8 inch.
7. Repeat Step 6.



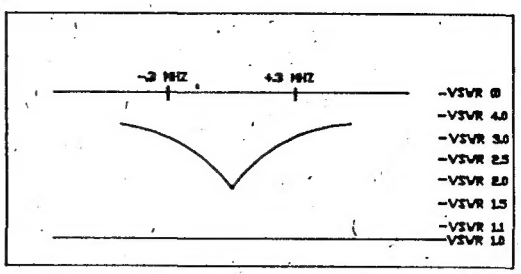
21-940 AMATEUR



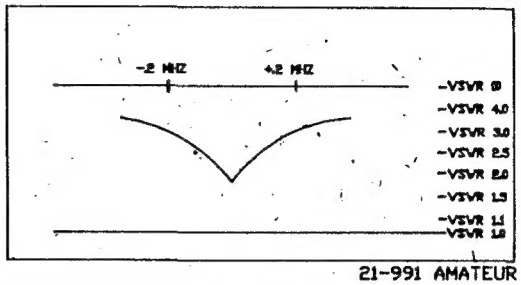
21-960 AMATEUR



21-1005 AMATEUR



21-908 AMATEUR



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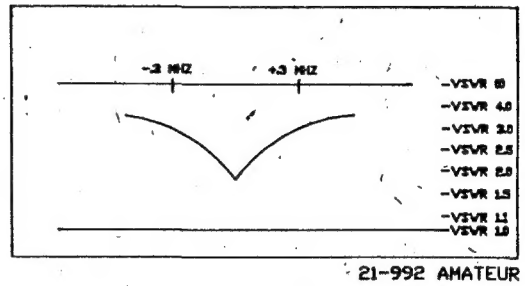

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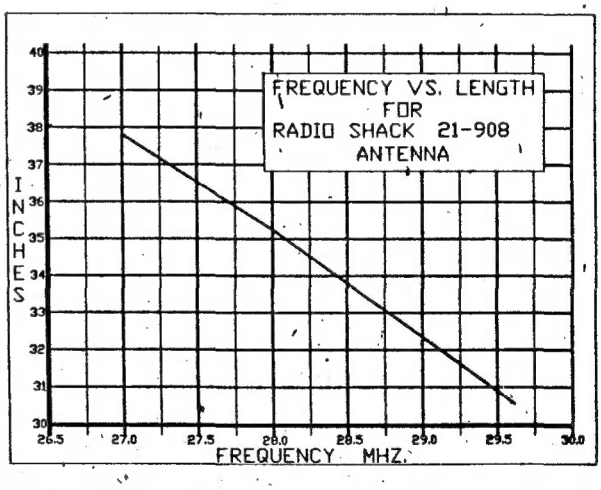

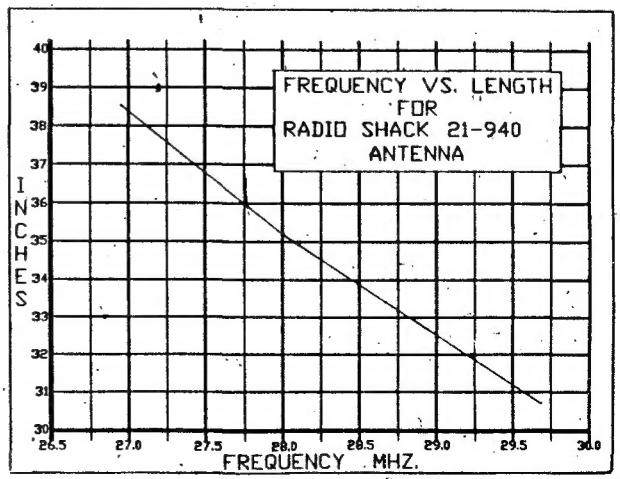

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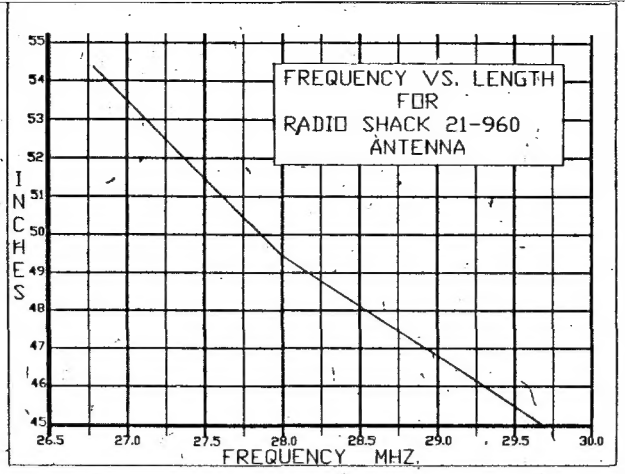
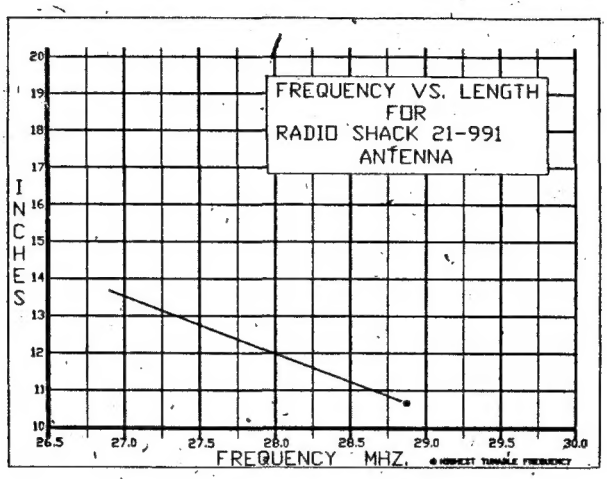
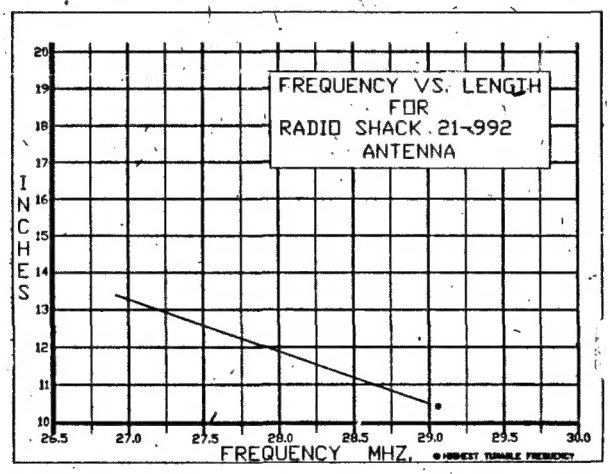
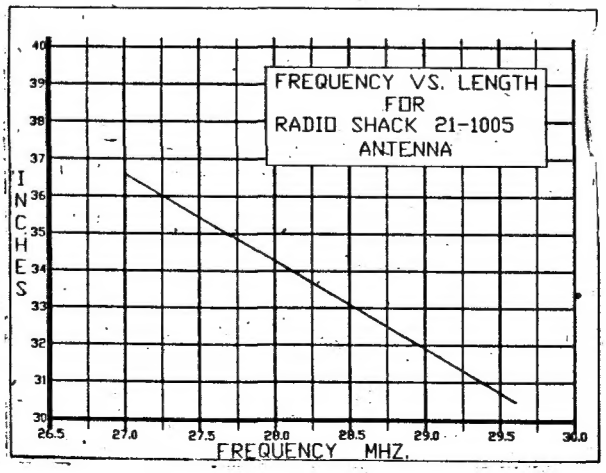
Trimming CB Antennas for 10-Meter Ham Radios









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CAPERS CLASSIFIEDS GET RESULTS!

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Amateur Radio Examinations

Test Sessions for 1989

All exams are held the second Saturday of the month

CARA 12:00 noon	FARA 1:00 pm	SARA 1:00 pm
March 11 June 10 September 9 December 9	April 8 July 8 October 14 January 13, 1990	May 13 August 12 November 11 Feb 10, 1990
Hawleyville Fire Station Route 25 Hawleyville (Newton), CT 06470	Fairfield Fire Training Center One Rod Highway Fairfield, CT 06430	American Red Cross 911 Newfield Avenue Stamford, CT 06905
Contact Joe Cassidy (NM1O) 31 Jackson Drive Trumbull, CT 06611 203-261-3915	Contact Jean A Cassidy (NM1P) 31 Jackson Drive Trumbull, CT 06611 203-261-3915	Contact Joe Leferson (W1LUH) 85 Sterling Place Stamford, Ct 06907 203-625-3680 days 203-322-3156 evenings

Check in at all exam sites is one hour before the exam start time

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ATV UPDATE

Here is the latest breaking news from the world of Amateur Television:

Pete - KZ1Z Now on ATV! An antenna raising party was held at Pete's home on Saturday April 29, 1989. In attendance were Lee - KA1EUE, Al - K1LTJ, Steve - KA1ECL and Jon - KA1RLX. John - NC1E showed up to inspect the finished product. An 11 Element Cushcraft beam for 220 MHz FM and an 11 Element Cushcraft beam for 440 MHz ATV were raised on a 35 foot mast. Pete is using the PC Electronics TC-70 ATV Transceiver and a Mirage 100 watt linear amplifier to feed the Cushcraft beam.

The KA1EUE/R ATV Repeater is in final testing stages and will be operational for live testing purposes from Lee's QTH very soon. Once the initial check-out phase is complete, the repeater will be moved to it's permanent home on a nearby hilltop. Input for KA1EUE/R is on 439.25 MHz with an output of 426.25 MHz.

The CARA CAPERS is published by:

Candlewood Amateur Radio Association
P.O. Box 143
Bethel, CT 06801

Candlewood Amateur Radio Association is affiliated with the American Radio Relay League. As such CARA receives a rebate on new or renewed memberships submitted by the association.

Addresses for CARA CAPERS:

Mail: Jon Radder - KA1RLX
4 Claredal Avenue
New Fairfield, CT 06812

Phone: (203) 746-6986
Mon-Fri: 8-11:00 PM
Weekends: Noon-11 PM

Packet: KA1RLX @ K1LTJ-4 PBBS via KA2BCD-1 (BKFLD) and / or K1LTJ-2 (WLTN), 145.03MHz

THANK YOU to:

Linne - KA1OLP Labels
Craig - N1ABY Printing & Stapling
Marilyn - XYL Folding & Stamping
Rob - NA1O Membership List
Al - K1LTJ Use of PBBS
Bob - KA2BCD Copies of Bit Bucket

Portions of the CAPERS came from:

The ARRL Letter published by:
American Radio Relay League
225 Main Street
Newington, CT 06111

The W5YI Report published by:
W5YI Fred Maia
P.O. Box 10101
Dallas, TX 75207

The Bit Bucket published by:
P.E.A.R.L.
P.O. Box 501
Carmel, NY 10512

Candlewood Amateur Radio Association
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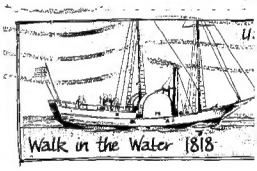
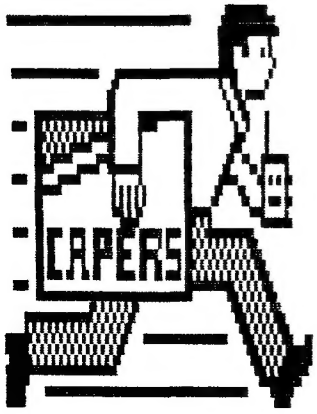
Bethel, CT 06801





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